

# LED level meter driver, 5-point, VU scale

## BA6124 / BA6124F

The BA6124 and BA6124F are driver ICs for LED VU level meters in stereo equipment and other display applications.

The ICs display the input level (range : -10dB to +6dB) on a 5-point, bar-type LED display.

The circuit includes a rectifier amplifier allowing direct AC input, and has constant-current outputs, so it can directly drive the LEDs without variations in LED current due to supply voltage fluctuations.

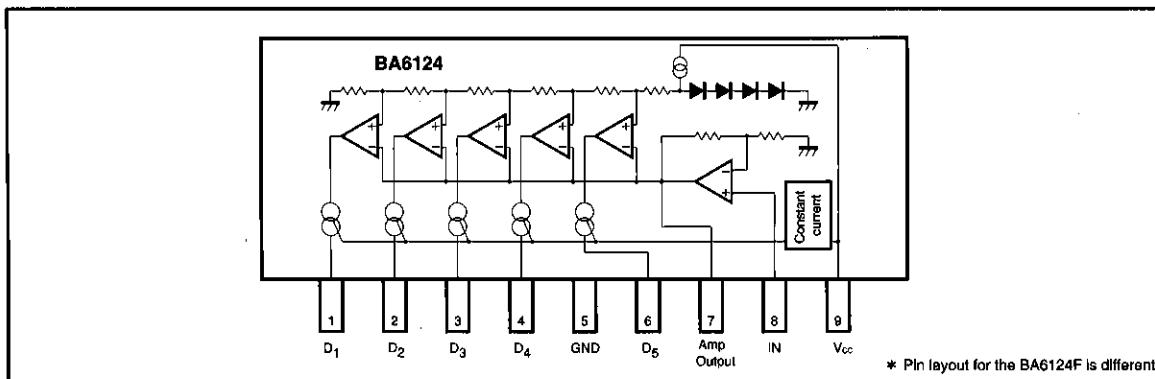
### ● Applications

VU meters, signal meters, and other display devices.

### ● Features

- 1) Rectifier amplifier allows either AC or DC input.
- 2) Constant-current outputs for constant LED current when the supply voltage fluctuates.
- 3) Built-in reference voltage means that power supply voltage fluctuations do not effect the display.
- 4) Wide operating voltage range (3.5V to 16V) for a wide range of applications.
- 5) Low PCB space requirements. Comes in a compact package and requires few external components.

### ● Block diagram



● Absolute maximum ratings ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Limits	Unit
Supply voltage	$V_{CC}$	18	V
Power dissipation	$P_d$	500*1	mW
BA6124F		300*2	
Operating temperature	$T_{OPR}$	-25~60	°C
Storage temperature	$T_{STG}$	-55~125	°C
Junction temperature	$T_J$	150	°C

\*1 Reduced by 5mW for each increase in  $T_a$  of 1°C over 25°C.\*2 Reduced by 3mW for each increase in  $T_a$  of 1°C over 25°C.● Electrical characteristics (unless otherwise specified  $T_a = 25^\circ\text{C}$ ,  $V_{CC} = 6.0\text{V}$ , and  $f = 1\text{kHz}$ )

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	Measurement Circuit
Operating voltage range	$V_{CC}$	3.5	6	16	V	—	Fig.1
Quiescent current	$I_Q$	—	5	8	mA	$V_{IN}=0\text{V}$	Fig.1
Control level 1	$V_{C1}$	-11.5	-10	-8.5	dB	—	Fig.1
Control level 2	$V_{C2}$	-6	-5	-4	dB	—	Fig.1
Control level 3	$V_{C3}$	—	0	—	dB	Adjustment point	Fig.1
Control level 4	$V_{C4}$	2.5	3	3.5	dB	—	Fig.1
Control level 5	$V_{C5}$	5	6	7	dB	—	Fig.1
Sensitivity	$V_{IN}$	74	85	96	$\text{mV}_{\text{ms}}$	$V_{C3}$ on level	Fig.1
LED current	$I_{LED}$	11	15	18.5	mA	—	Fig.1
Input bias current	$I_{INO}$	—	0.3	1.0	$\mu\text{A}$	—	Fig.1

## ● Measurement circuit

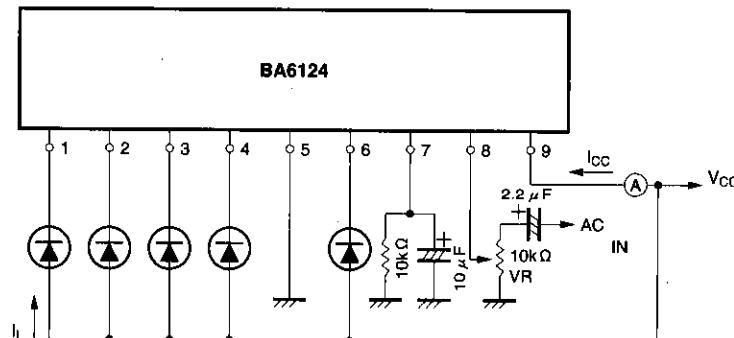


Fig. 1

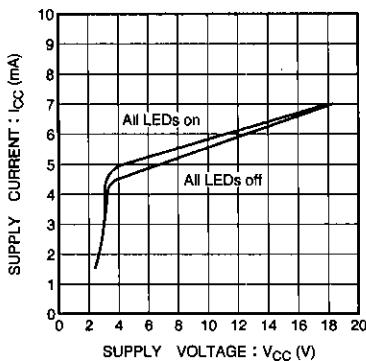
● Electrical characteristics curves ( $T_a = 25^\circ\text{C}$ )

Fig. 2 Supply current vs. supply voltage

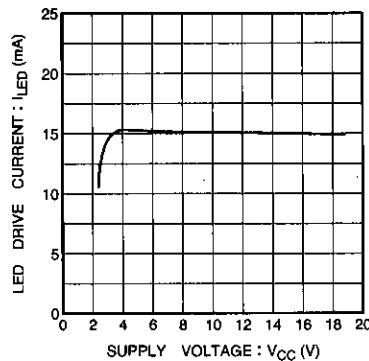


Fig. 3 LED drive current vs. supply voltage

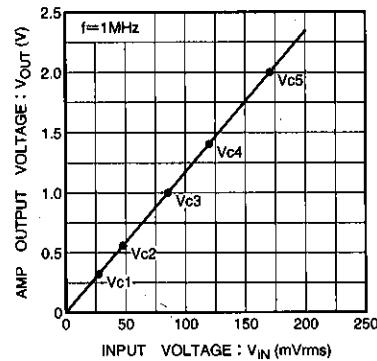


Fig. 4 Rectifier amplifier output voltage vs. input voltage

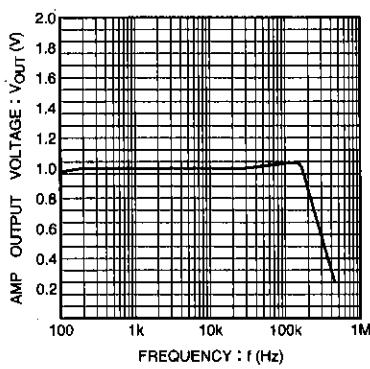


Fig. 5 Rectifier amplifier output voltage vs. frequency

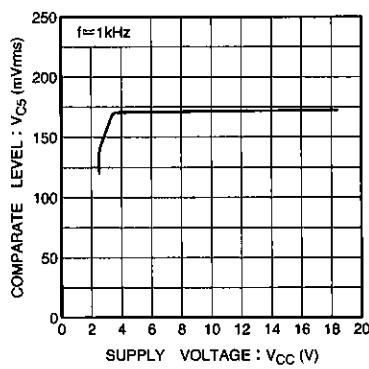


Fig. 6 Comparator level vs. supply voltage

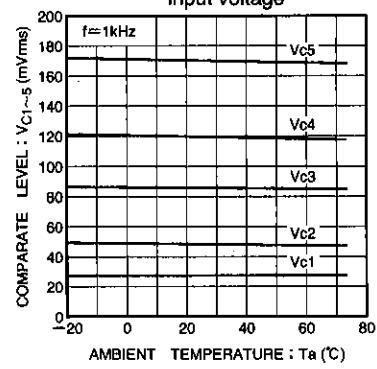


Fig. 7 Comparator level vs. ambient temperature

## ● Dimensions (Units: mm)

